Reviewing the Reproduction Program at the Case Farm

Bill Stone
Pro-Dairy
Cornell University

Getting ‘em pregnant

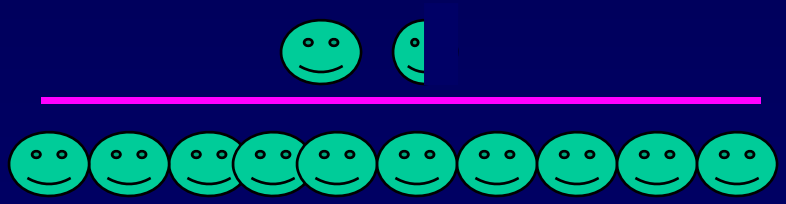
Catch them in heat
Synchronized breeding

Heat Detection Rate
Service Rate
~ 47% average

Mission accomplished

Conception Rate
~33% average

End result

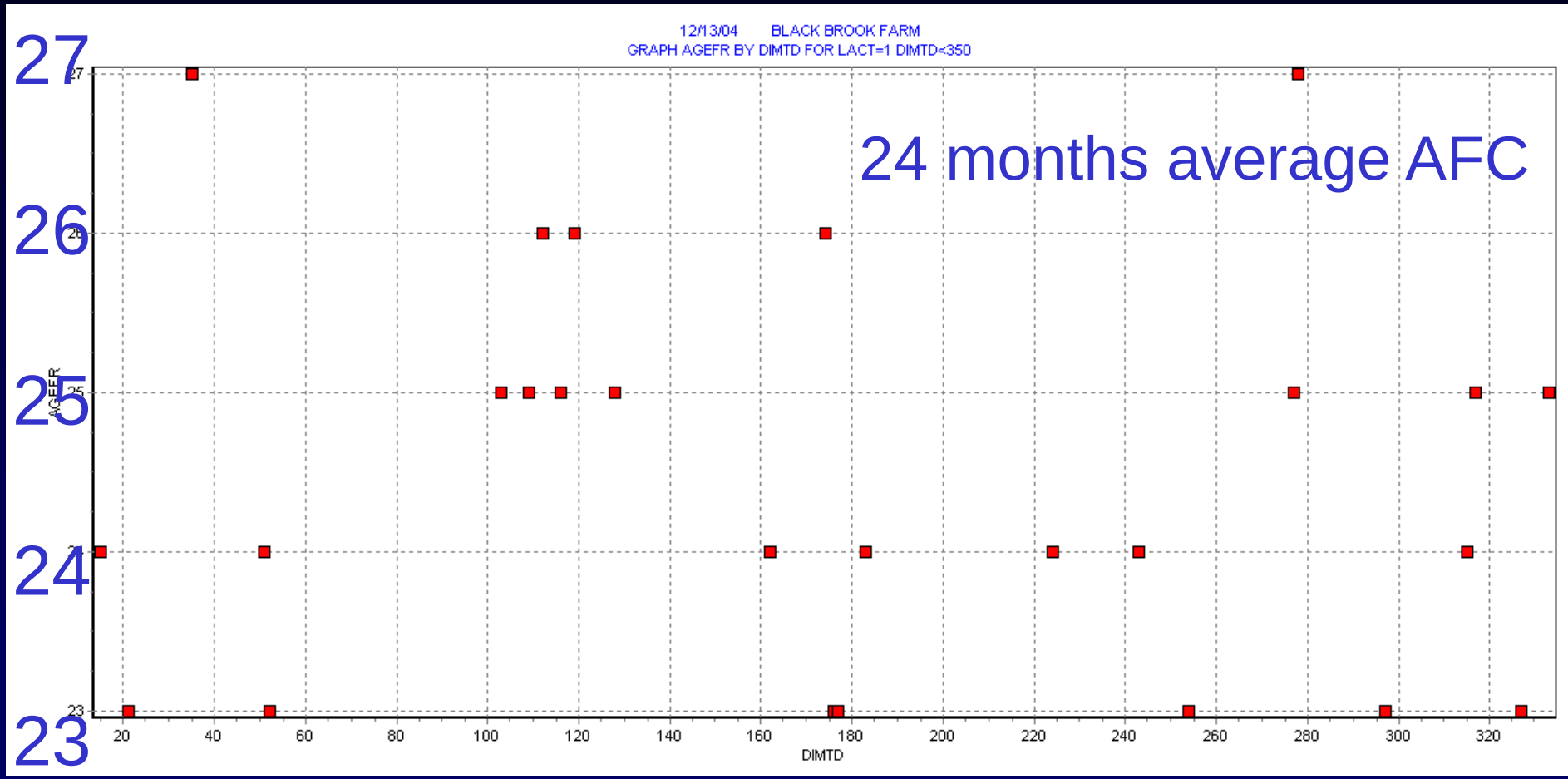


Pregnancy rate
~ 15% average
$25/point/cow
5 point change =
$12,500 per 100 cows

Heifer Repro Results

Black Brook

AFC



27 26 25 24 23

50 130 190 270 320

DIM

Black Brook

Cow Repro Results

Goal:
> 20% PR

BREDSUM\EV55

Date	Ht Elig	Heat	Pct	Pg Elig	Preg	Pct	Aborts
12/01/03	31	14	45	31	7	23	0
12/22/03	29	12	41	29	4	14	0
1/12/04	34	14	41	34	5	15	0
2/02/04	32	18	56	31	5	16	1
2/23/04	33	19	58	33	9	27	1
3/15/04	29	11	38	29	4	14	0
4/05/04	32	12	38	32	7	22	0
4/26/04	31	16	52	30	3	10	0
5/17/04	30	17	57	29	9	31	0
6/07/04	24	10	42	23	5	22	0
6/28/04	21	9	43	20	2	10	0
7/19/04	23	11	48	23	2	9	0
8/09/04	29	10	34	29	3	10	0
8/30/04	32	23	72	30	7	23	0
9/20/04	27	11	41	26	4	15	0
10/11/04	35	17	49	33	4	12	0
11/01/04	35	21	60	0	0	0	0
11/22/04	22	14	64	0	0	0	0
Total	472	224	47	462	80	17	2

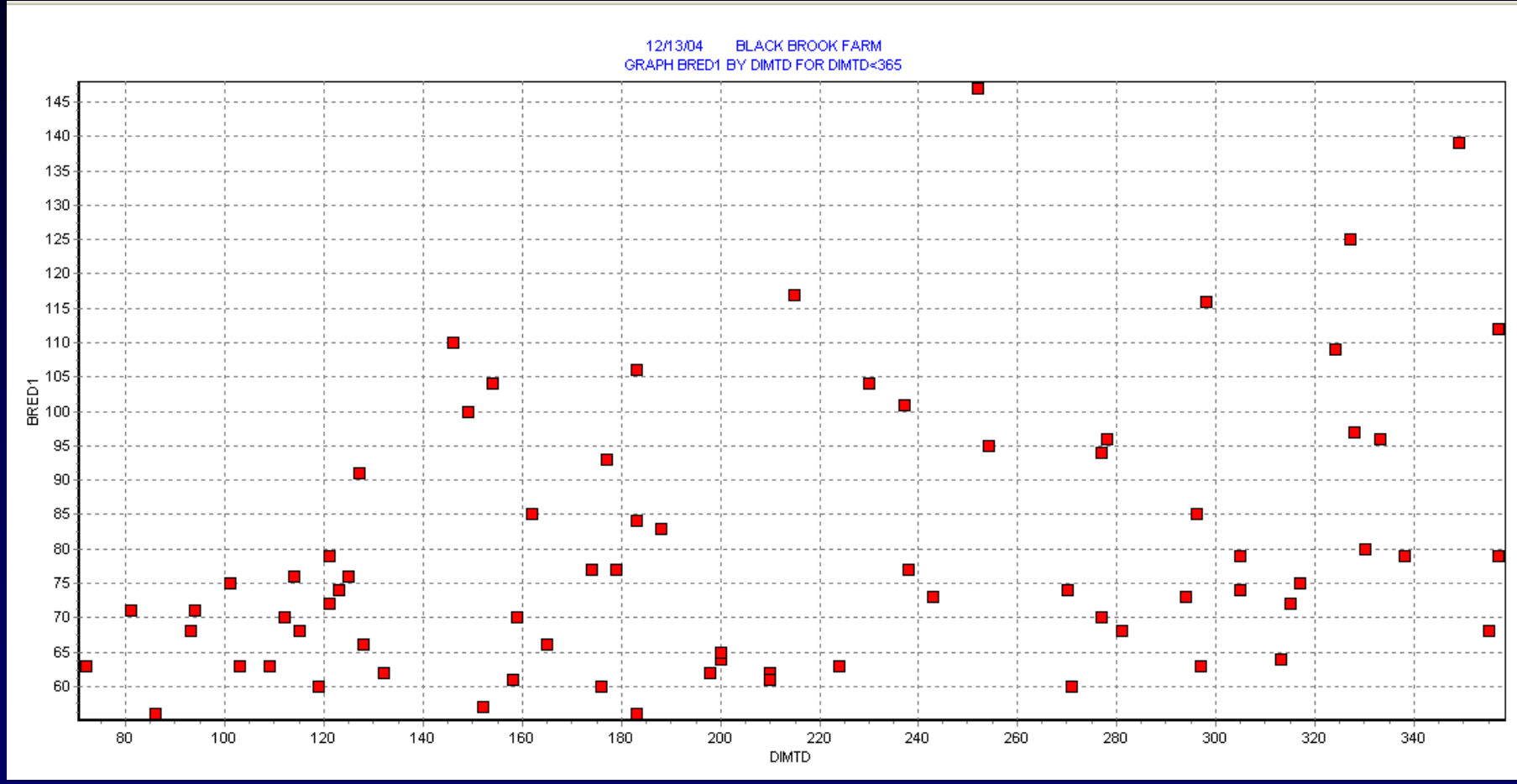
Pregnancy Rate

36% CR

Heat Detection Rate

DIM at first breeding

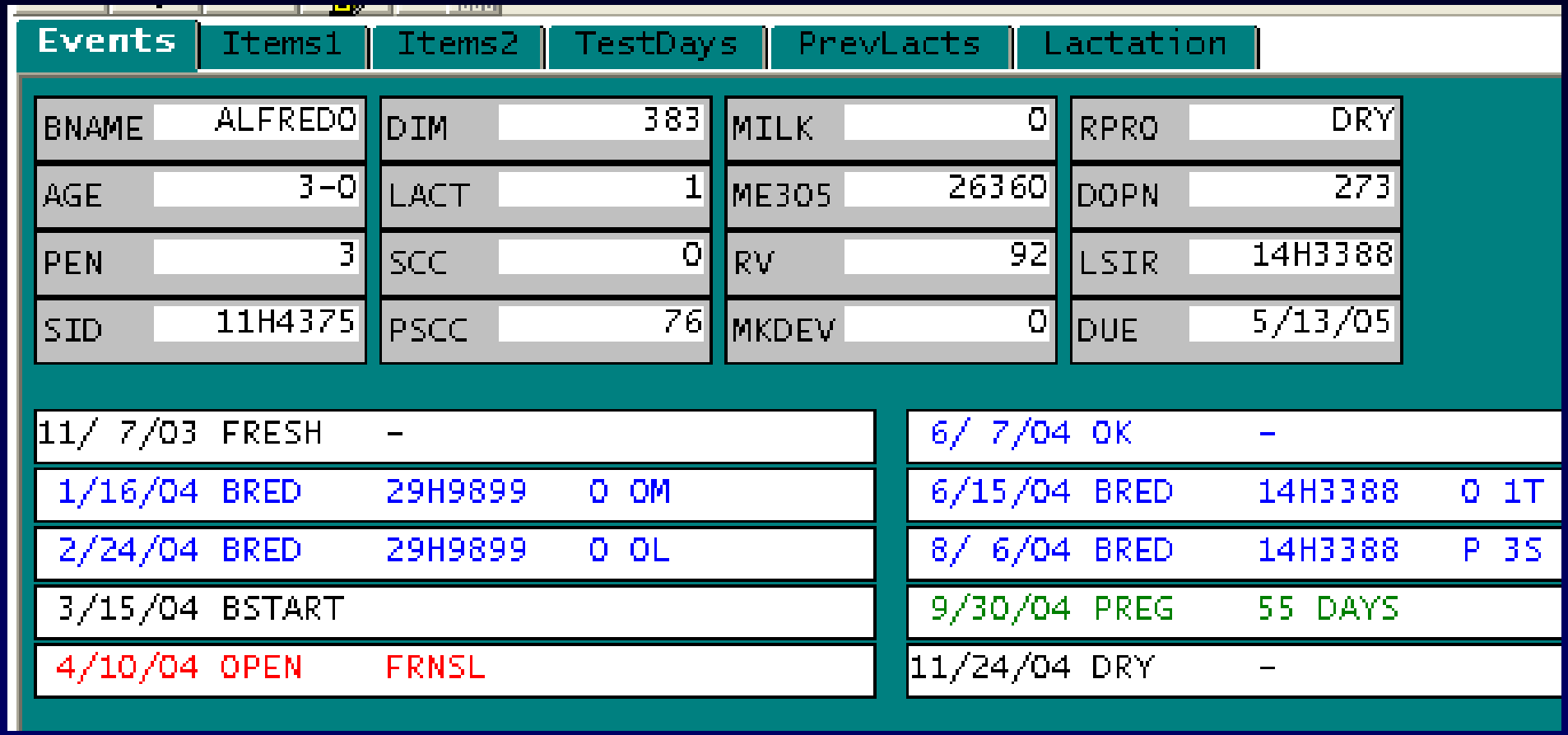
Black Brook



DIM at 1st breeding

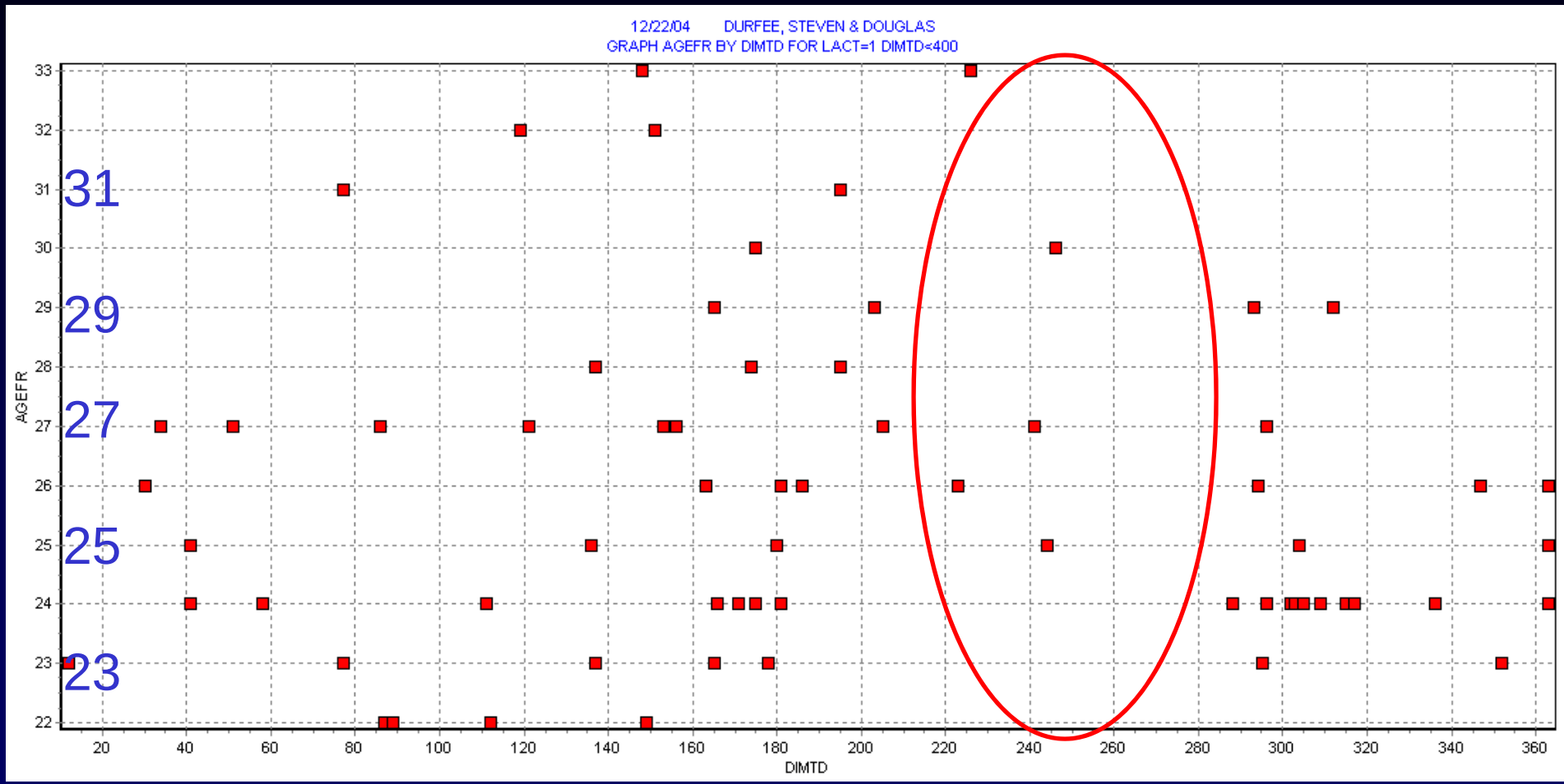
DIM

Black Brook


Events
Items1
Items2
TestDays
PrevLacts
Lactation
BNAME ALFREDO
DIM 383
MILK 0
RPRO DRY
AGE 3-0
LACT 1
ME305 26360
DOPN 273
PEN 3
SCC 0
RV 92
LSIR 14H3388
SID 11H4375
PSCC 76
MKDEV 0
DUE 5/13/05
11/ 7/03 FRESH -
1/16/04 BRED 29H9899 0 OM
2/24/04 BRED 29H9899 0 OL
3/15/04 BSTART
4/10/04 OPEN FRNSL
6/ 7/04 OK -
6/15/04 BRED 14H3388 0 1T
8/ 6/04 BRED 14H3388 P 3S
9/30/04 PREG 55 DAYS
11/24/04 DRY -

Heifer Repro Results

Durfee Dairy



26 months average AFC

BREDSUM\V45E

Date	Ht Elig	Heat	Pct	Pg Elig	Preg	Pct	Aborts
12/10/03	57	29	51	54	7	13	4
12/31/03	50	30	60	47	9	19	1
1/21/04	44	21	48	41	6	15	0
2/11/04	48	32	67	46	7	15	1
3/03/04	45	21	47	44	7	16	0
3/24/04	53	20	38	53	9	17	2
4/14/04	60	24	40	59	3	5	0
5/05/04	60	37	62	57	12	21	0
5/26/04	46	20	43	45	5	11	0
6/16/04	46	14	30	44	7	16	0
7/07/04	47	16	34	45	3	7	0
7/28/04	51	25	49	49	7	14	0
8/18/04	61	14	23	58	2	3	0
9/08/04	68	40	59	64	18	28	0
9/29/04	61	21	34	59	9	15	0
10/20/04	61	28	46	55	6	11	0
11/10/04	58	35	60	0	0	0	0
12/01/04	43	28	65	0	0	0	0
Total	858	392	46	820	117	14	8

Durfee Dairy

Cow Repro Results

Goal:
> 20% PR

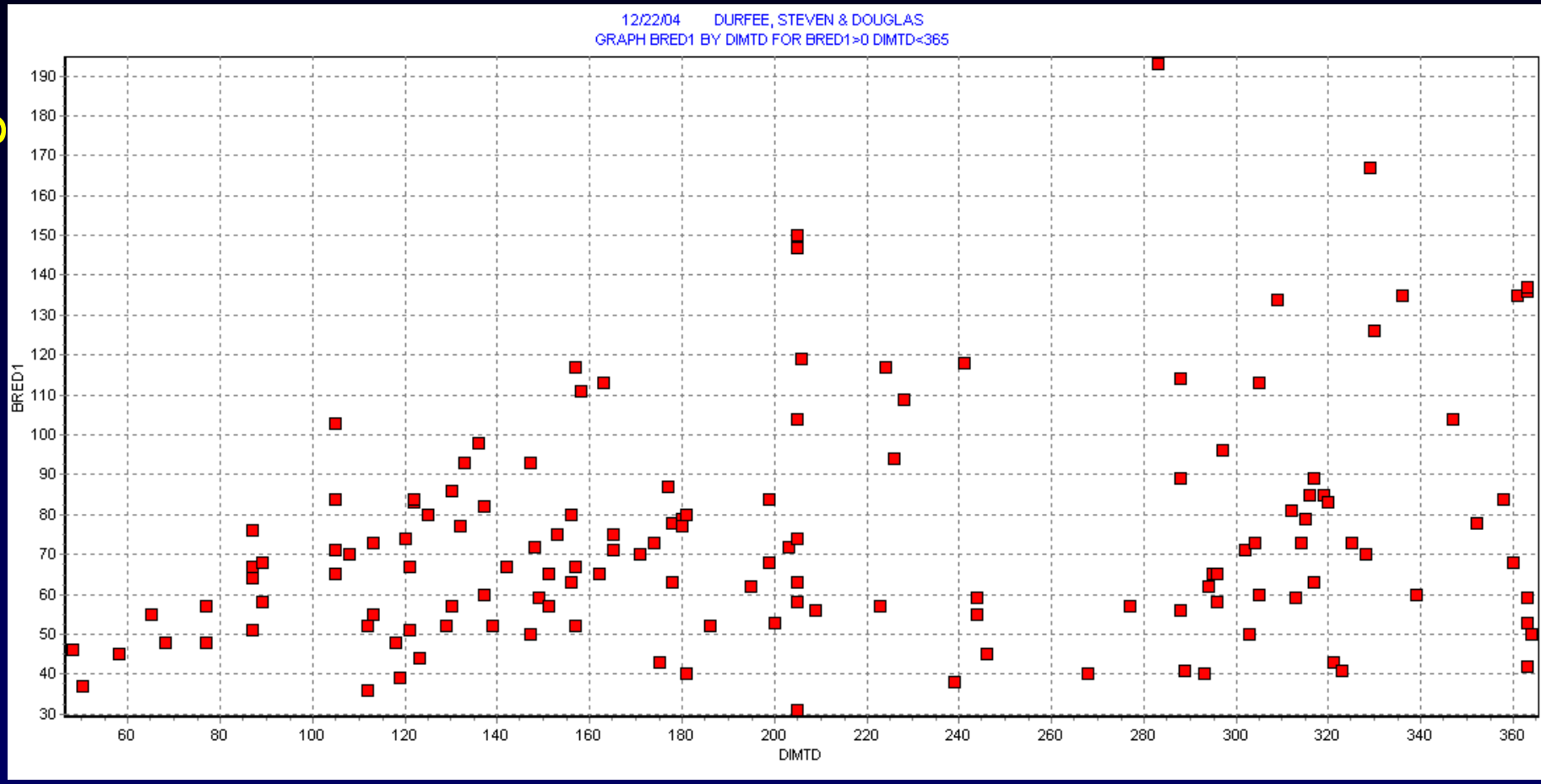
Pregnancy Rate

31% CR

Heat Detection Rate

Durfee Dairy

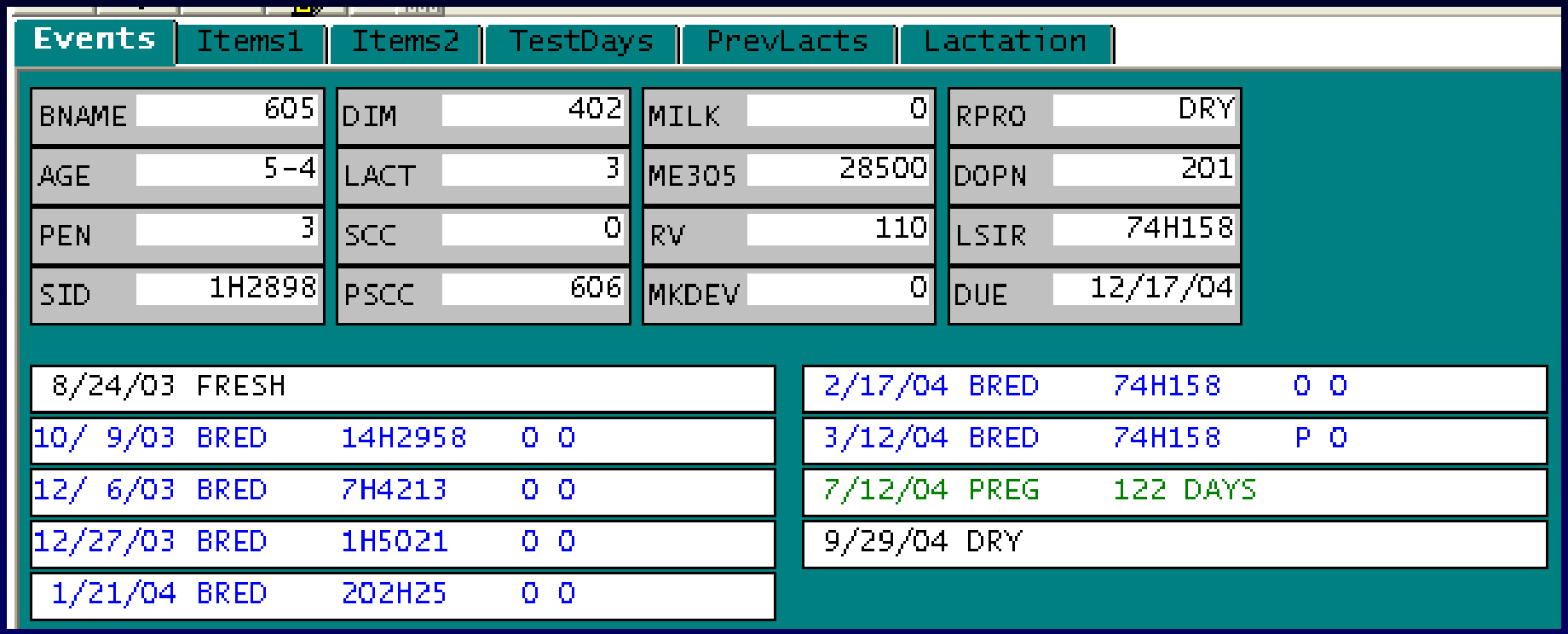
DIM at first breeding



DIM at 1st breeding

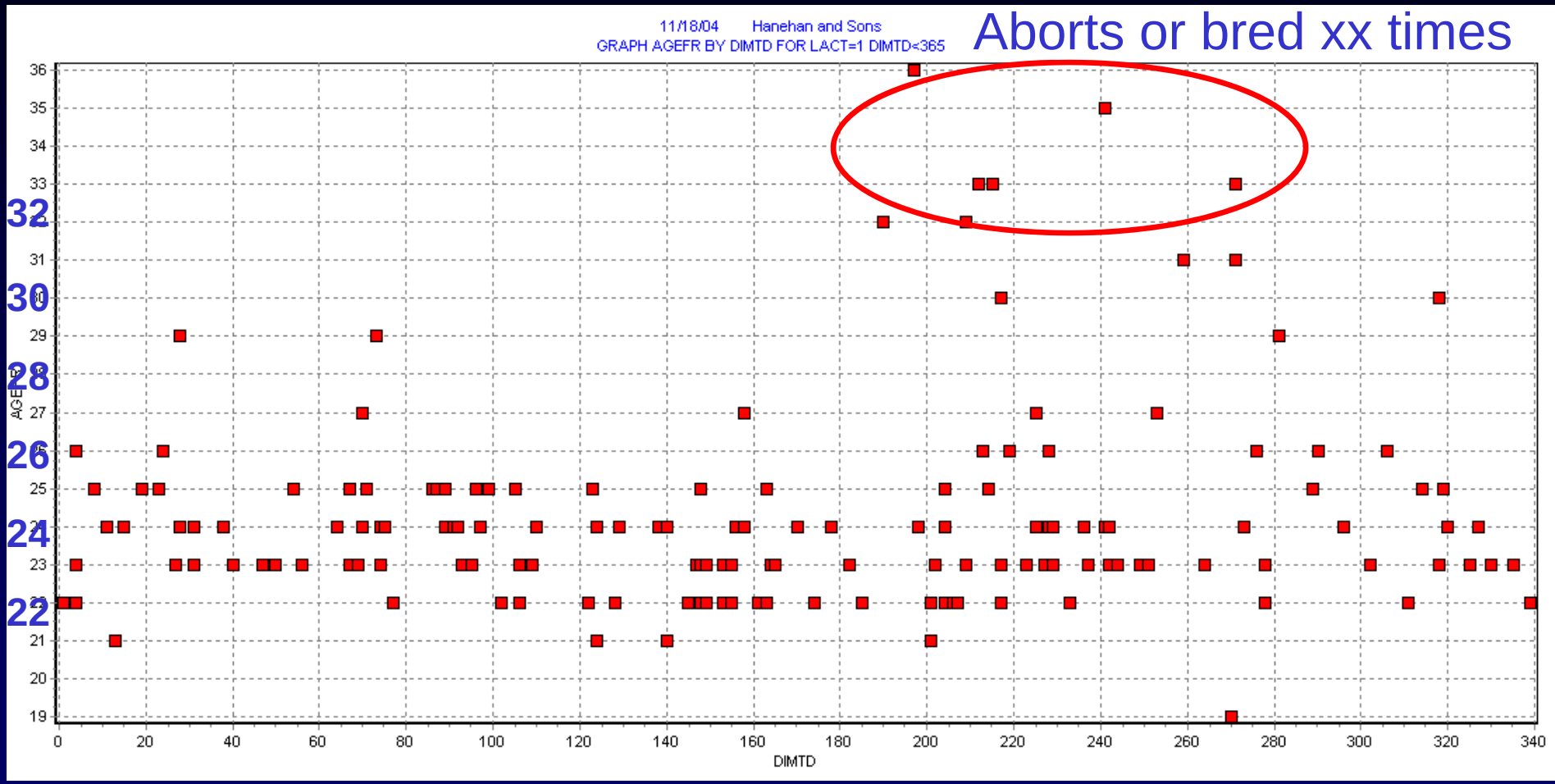
DIM

Durfee Dairy



Heifer Repro Results

Hanehan Dairy



24 months average AFC

Hanehan Dairy

BREDSUM\V47

Date	Ht Elig	Heat	Pct	Pg Elig	Preg	Pct	Aborts
1/06/04	131	61	47	130	27	21	2
1/27/04	132	71	54	130	23	18	4
2/17/04	127	74	58	125	30	24	5
3/09/04	118	77	65	116	29	25	2
3/30/04	102	58	57	100	24	24	0
4/20/04	105	53	50	105	15	14	1
5/11/04	123	60	49	123	18	15	2
6/01/04	127	63	50	127	26	20	0
6/22/04	126	65	52	125	20	16	1
7/13/04	148	77	52	147	21	14	1
8/03/04	157	99	63	155	39	25	2
8/24/04	147	80	54	146	23	16	1
9/14/04	158	87	55	154	27	18	2
10/05/04	167	98	59	166	38	23	0
10/26/04	153	73	48	152	22	14	0
11/16/04	160	81	51	154	12	8	1
12/07/04	171	90	53	0	0	0	0
12/28/04	140	100	71	0	0	0	0
Total	2181	1177	54	2155	394	18	24

Cow Repro Results Goal:
> 20% PR

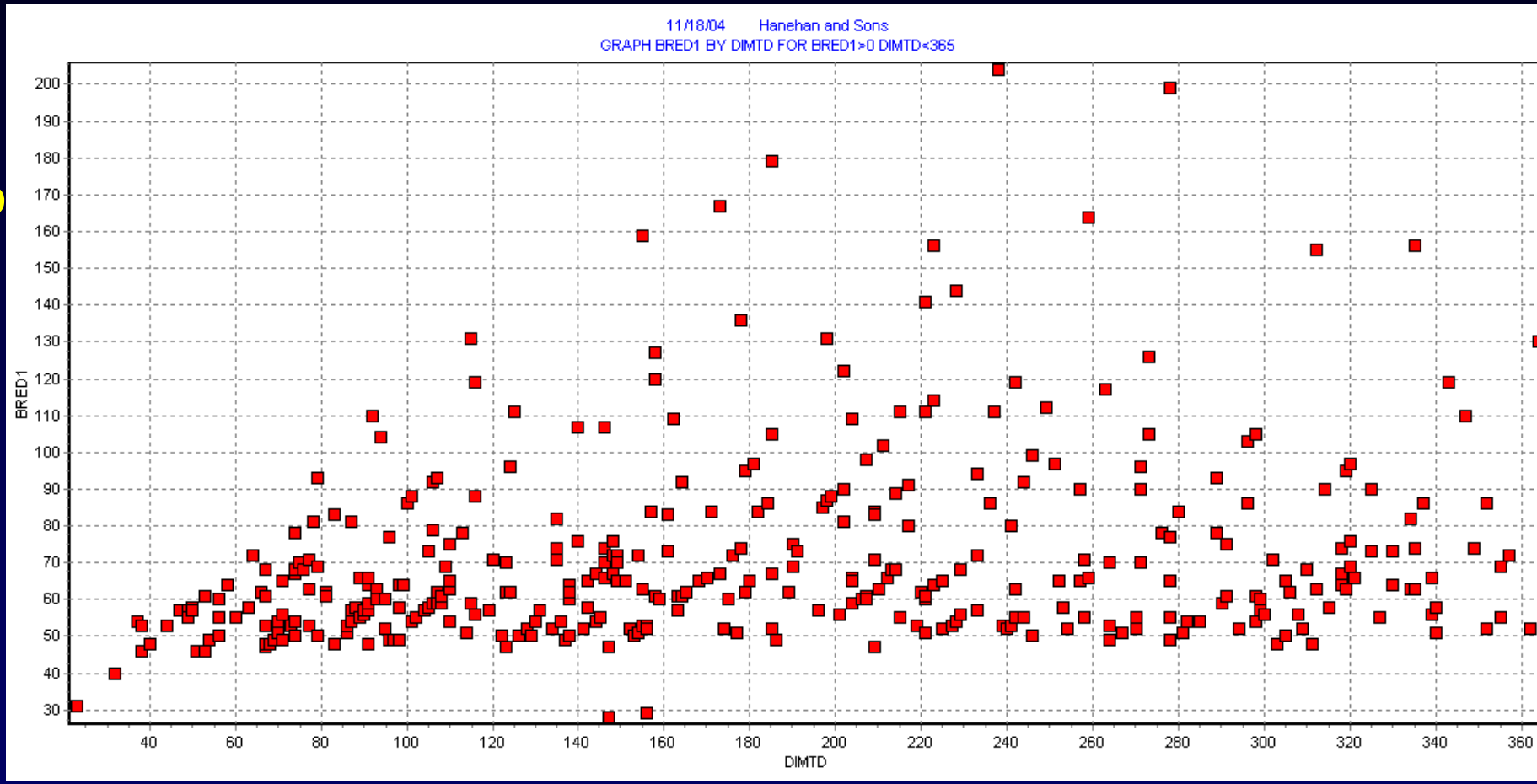
Pregnancy Rate

37% CR

Heat Detection Rate

Hanehan Dairy

DIM at first breeding



DIM at 1st breeding

DIM

Hanehan Dairy

BREDSUM

Breeding Code	%Conc	#Preg	#Open	Other	Total	%Tot	SPC
STANDING	36	342	608	61	1011	74	2.8
CHALK RUB OFF	34	70	133	16	219	16	2.9
CHALK R/O LT	62	5	3	0	8	1	1.6
CIDR	40	12	18	4	34	2	2.5
SECONDARY	50	1	1	1	3	0	2.0
OVUSYNCH	11	1	8	1	10	1	9.0
PATCH R/O	13	10	63	5	78	6	7.3
TOTALS	34	441	834	88	1363	100	2.9

Hanehan Dairy

Events | Items1 | Items2 | TestDays | PrevLacts | Lactation

ID	249	DIM	387	SID	97H4	RPRO	PREG
REG	10249	MILK	26	DID	0	DOPN	186
LACT	2	HINT	64	DSLH	201	LSIR	1H8300
PEN	99	305ME	21340	RELV	77	DUE	4/ 9/05

12/28/03	FRESH	M2	
2/ 6/04	MOVE	FRO4TO01	
2/10/04	LUT-S		
2/16/04	BRED	1H5663	O 51
3/13/04	BRED	7H5706	O 51
4/19/04	OPEN	FL	
4/28/04	HEAT		
6/ 7/04	FE.TRIM	-	

6/10/04	MOVE	FRO1TO02	
6/14/04	LUT	CLR	
6/28/04	LUT	CLR	
7/ 1/04	BRED	1H8300	P 61
7/ 2/04	BSTON		
8/ 9/04	PREG	39 DAYS	
8/19/04	MOVE	FRO2TO99	

Four approaches to reproductive programs

1. “Industry norm”

2. Aggressive heat detection,
   no synchronization

3. Total synchronization

4. Combined synchronization and HD

- C:COWFILE1.DAT ---------- ------------ 1/10/05 -

Date	Br Elig	Bred	Pct	Pg Elig	Preg	Pct	Aborts
12/29/03	124	78	63	124	36	29	4
1/19/04	141	68	48	141	21	15	3
2/09/04	162	92	57	162	30	19	2
3/01/04	163	106	65	162	37	23	6
3/22/04	183	112	61	183	36	20	4
4/12/04	204	139	68	204	57	28	7
5/03/04	197	123	62	197	49	25	2
5/24/04	197	113	57	197	34	17	3
6/14/04	194	118	61	193	36	19	9
7/05/04	189	109	58	189	33	17	3
7/26/04	213	142	67	213	42	20	4
8/16/04	226	156	69	225	51	23	4
9/06/04	240	156	65	237	53	22	6
9/27/04	231	153	66	231	47	20	4
10/18/04	251	171	68	243	61	25	0
11/08/04	244	187	77	241	60	25	0
11/29/04	229	151	66	0	0	0	0
12/20/04	169	142	84	0	0	0	0
Total	3159	2023	64	3142	683	22	61

Primarily from HD

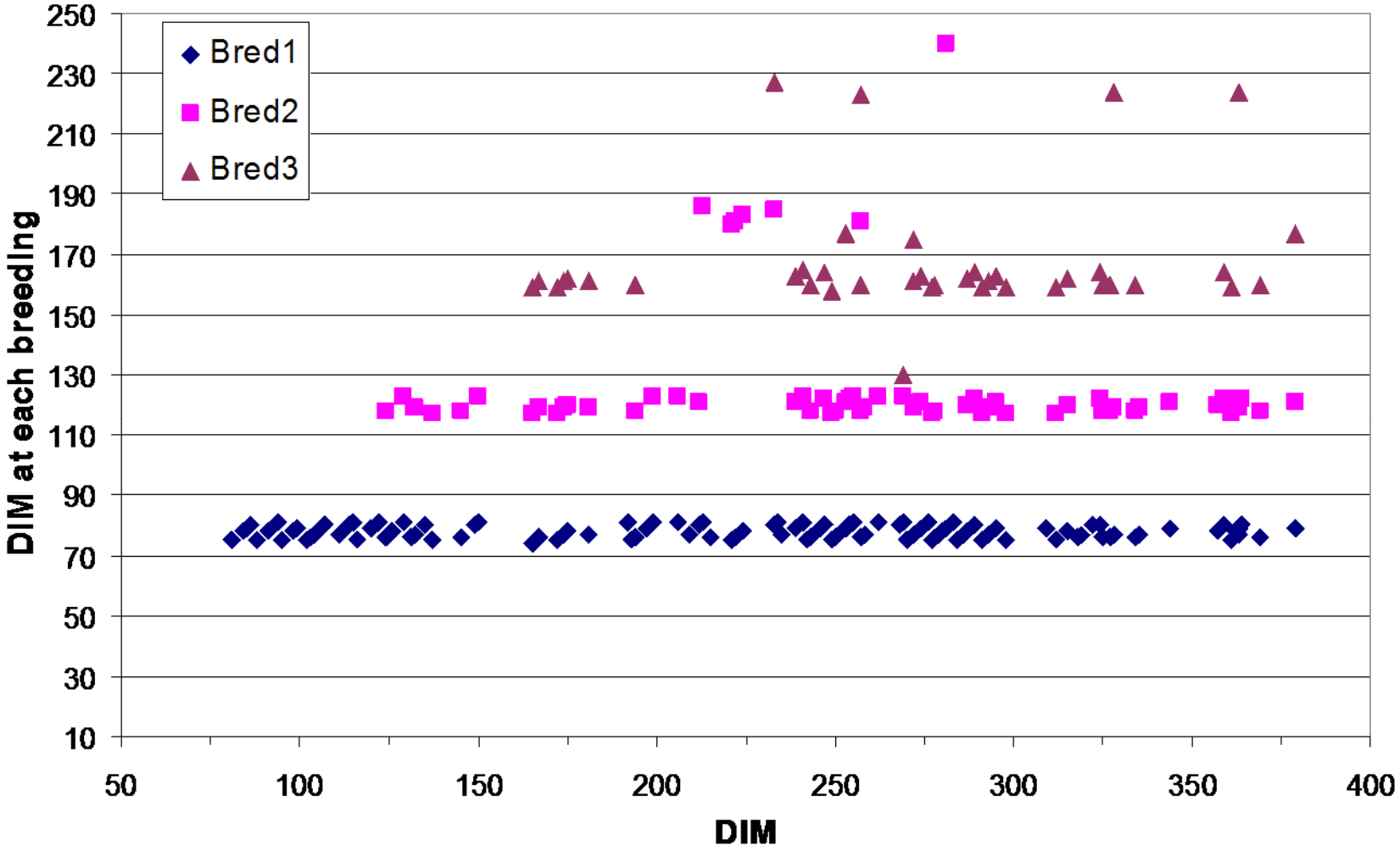
- C:COWFILE1.DAT ---------- ---------- 1/10/05 -

Summarized By Breeding Code from 12/ 7/03 through 12/ 6/04

Breeding Code	%Conc	#Preg	#Open	Other	Abort	Total	%Tot	SPC
gnrh	31	47	103	6	3	156	6	3.2
kamar	31	22	47	12	0	81	3	3.1
Lutalyse&Stand	40	17	25	1	2	43	2	2.5
mucus	0	0	1	0	0	1	0	
OvSynchProgram	32	139	285	3	20	427	17	3.1
standing	31	539	1171	48	51	1758	71	3.2
vet heat	100	2	0	0	0	2	0	1.0
TOTALS	32	770	1636	71	76	2477	100	3.1

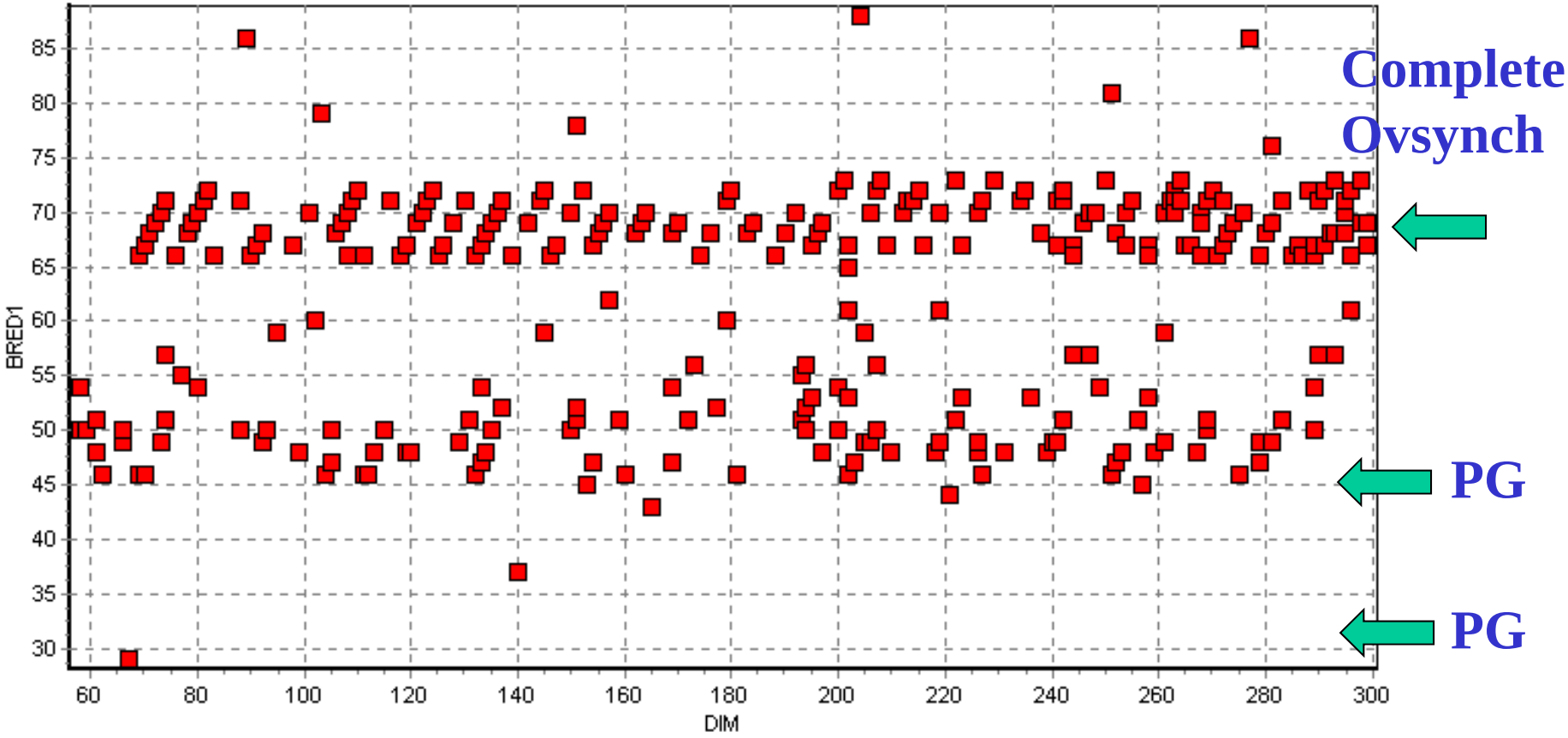
5 non-AI breedings were omitted

Figure 2. Days in milk at first, second, and third breeding in a dairy using only synchronized breeding



Bred1, 2, and 3 correspond with DIM at first, second, and third breedings.

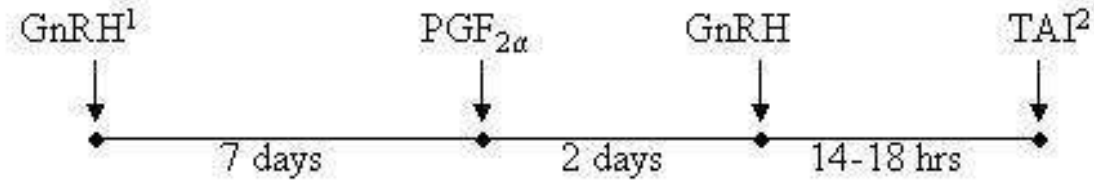
Figure 3. Days in milk by DIM at first breeding in a dairy using both heat detection and synchronization.



Note: each square represents one cow. Cows are on the Presynch program (Ovsynch preceded by two injections of prostaglandin (PG)). Cows observed in heat after the second PG injection are bred; others are bred at the conclusion of Ovsynch.

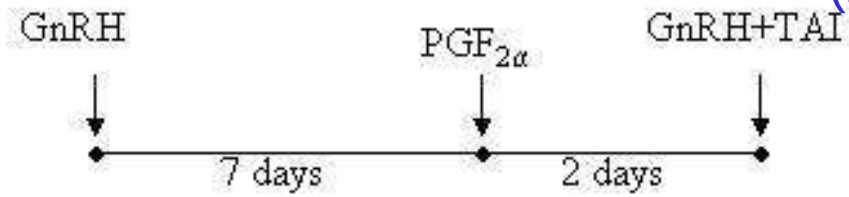
Table 2. Estimated results and economics of various reproductive programs.				
	Industry Norm[1]	Aggressive Heat Detection	Total Synchronization	Combined HD Synchronizati
Heat detection (HD) Method	Completed with other chores, minimal specified HD time	Scheduled HD for at least 1 hr at 12 h intervals	No HD Only synchronized breedings	HD completed other chores; tar HD when group expected to be in
Expected HD%[2]	35-50%	45-90%	0	40-50%
Average HD%	40	55	-	45%[3]
Expected CR%	26-40%	26-40%	26-40%	26-40%
Average CR%	32	33	33	33
Expected PR%	12-15%	15-25%	16-23%	18-25%
Average PR%	13	18	20	22
Per 100 cows				
Annual hormonal expenses[4]	-	-	$2850	$1700
Injecting/Managing	-	-	1 h/wk	.8 h/wk
Synch. Program[5]			$500/year	$400/year
HD time/week, hours	3	14	-	5
HD $/year	$1560	$7300	-	$2600
Total Investment/year	$1560	$7300	$3350	$4700
Return from increased PR[6]	-	$11000	$15400	$19800
Net annual return over "Industry Norm"	-	$3700	$12050	$15100

Ovsynch



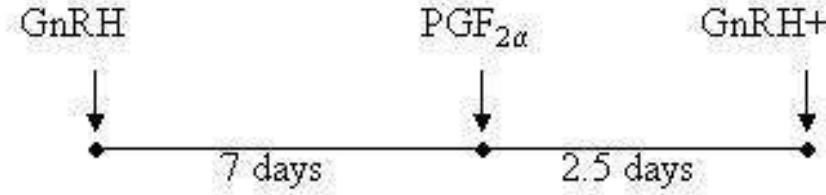
(24 h - 28%)

Cosynch

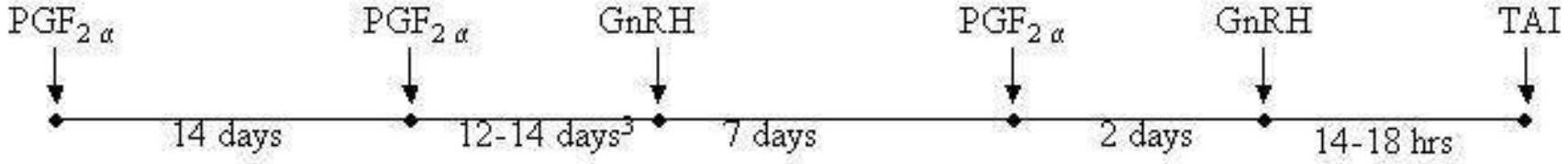


(22%)

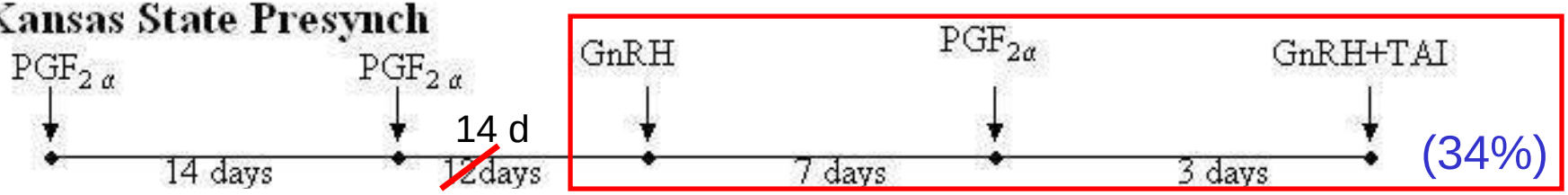
Modified Cosynch



Presynch



Kansas State Presynch



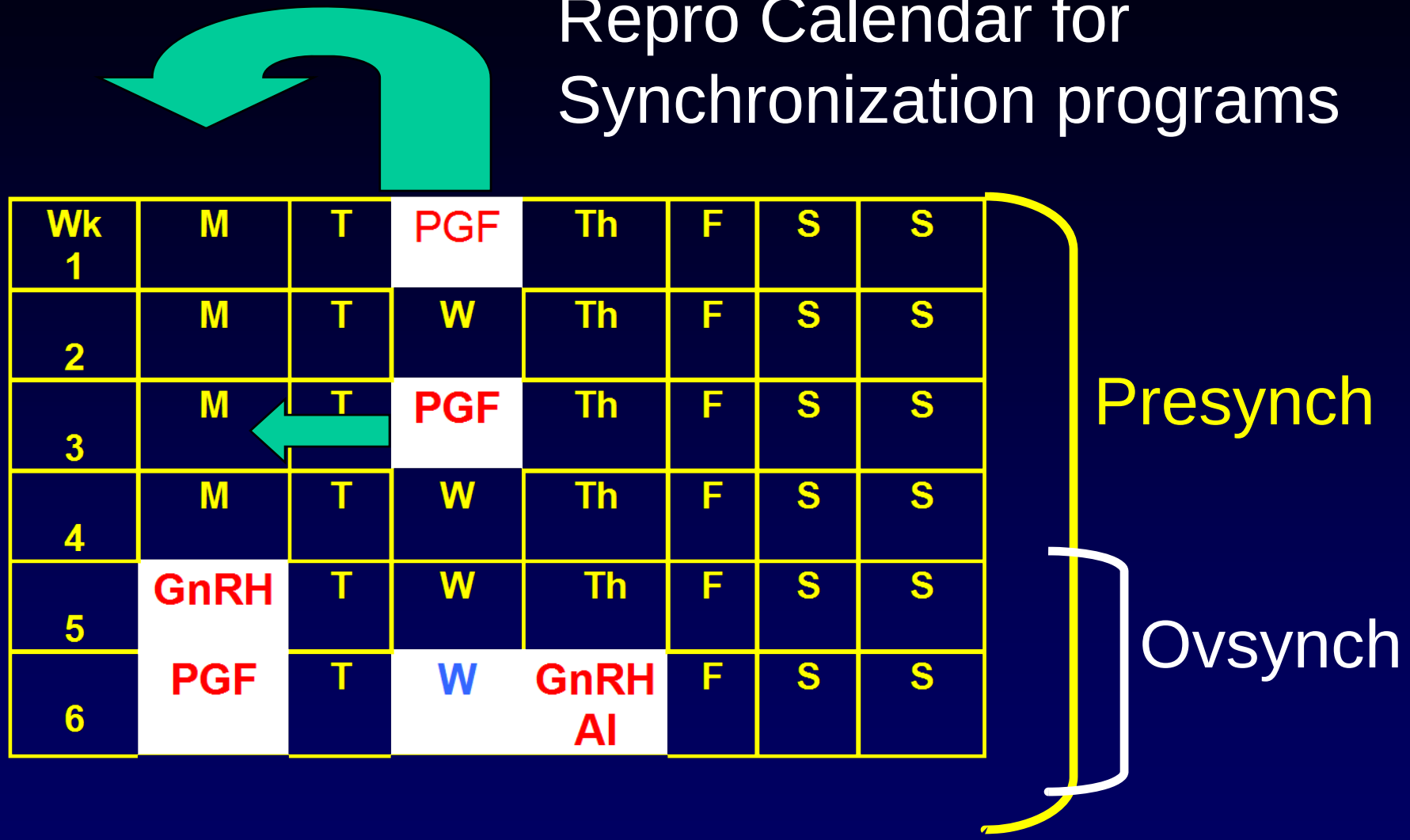
(34%)

.95 .95 .95 .95 .95 = .77

[1]GnR
use a

.70 .70 .70 .70 .70 = .17 ms

Repro Calendar for Synchronization programs



Why Synchronization Programs Might Fail

Management – Improving compliance

Reduce the number of times cows are handled

Shots on vet check and breeding day?

Have plenty of help (3 minimum plus veterinarian)

Insemination time

- Have the cows easily identified
- Be there to assist the inseminator
- Does your inseminator have good success with a flaccid uterus? (most Ovsynch cows don't come into heat)
- Tired arm? Tried patience? Too many straws?

- Synchronization program success depends on the details
  - Must have an easy implementation plan

- Simplify your herd's approach
  - Coordinate cow handling activities
  - 14 days vs 12 days
  - GnRH on insemination day